

ATTORNEY DOCKET NO. 19264.0011U2

SERIAL NO. 09/920,715

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-10. (cancelled)

11. (previously presented) A sample preparation method comprising providing a sample wafer of interest on a support, cutting and extracting a desired nano-level portion from the wafer with a laser, holding and protecting the portion with a holder, placing the portion inside a focused ion beam source, thinning an area of interest on the portion with the focused ion beam source, and transferring the portion with the area of interest to a transmission electron microscope and analyzing the portion with the transmission electron microscope.

12. (original) The method of claim 11, wherein the extracting comprises extracting the portion *in situ*.

13. (original) The method of claim 11, wherein the providing the sample comprises providing a wafer stage platform for the sample, and selecting the area of interest with an optical microscope.

14. (original) The method of claim 13, further comprising automatically addressing specific locations of the area of interest on the wafer selected by the optical microscope with a computer operated pattern recognition assembly connected to the optical microscope.

15. (original) The method of claim 14, further comprising milling the wafer with the laser attached to the optical microscope, wherein the milling comprises milling a desired pattern of the area of interest in the wafer.

16. (original) The method of claim 15, wherein milling the desired pattern comprises forming a thin sample strip with ends and holes and then cutting the portion as a block from the wafer.

17. (original) The method of claim 15, wherein the milling comprises milling with a femto-laser for minimizing thermal damage caused by laser ablation.

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18. (original) The method of claim 16, further comprising moving the sample wafer with a micro-manipulator during the laser milling and the cutting.
19. (original) The method of claim 18, wherein the moving comprises moving the laser during the laser milling and the cutting.
20. (original) The method of claim 18, wherein the moving comprises moving the support during the laser milling and the cutting.
21. (previously presented) The method of claim 18, wherein the moving comprises moving an arm with dual stylus of the micro-manipulator, engaging ends of the milled portion, extracting the cut block from the wafer, placing the block in a transmission electron microscope holder tip of a transmission electron microscope holder.
22. (previously presented) The method of claim 21, further comprising finishing and thinning the sample strip by a focused ion beam source.
23. (previously presented) The method of claim 22, further comprising rotating the block by about 90° with the transmission electron microscope holder and transferring the block to a transmission electron microscope for analysis.
24. (previously presented) The method of claim 23, further comprising turning the area of interest on its edge, inspecting and analyzing the area of interest with the transmission electron microscope.
25. (previously presented) The method of claim 16, wherein the milling the block comprises forming a block of desired shape containing the sample strip in a selected area, forming the sample strip thinner than the block, and inspecting the sample strip with a transmission electron microscope.

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26. (original) The method of claim 25, further comprising laser-drilling guide holes on ends of the block for picking up by an arm or bracket with dual stylus and using a substrate of the block for protecting the thin sample strip taken from the area of interest of the wafer.

27. (previously presented) The method of claim 26, further comprising fitting focused ion beam source and transmission electron microscope instruments on the bracket for automatically receiving the block without any contamination.